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# Pavement Asset Management Strategies

**APRIL 2007**

## **Background**

In 1998, the Department of Transportation (Department) presented the first Ten Year State Highway Operation and Protection Program (SHOPP) with emphasis on reducing rehabilitation needs by employing a system approach. Because of the high cash balance in the State Highway Account, additional funding was made available for pavement rehabilitation between 1998/1999 to 1999/2000 fiscal years, and rehabilitation needs decreased from 11,831 lane miles to 10,421 lane miles. However, the Department was unable to sustain this increased funding level from 2001/2002 to 2005/2006, because the cash balance in the State Highway Account decreased. Consequently, the rehabilitation needs increased from 10,421 to 13,845 lane miles.

The State Highway System consists of approximately 51,000 lane miles, of which 13,845 lane miles need rehabilitation as of the 2006/07 fiscal year. In December 2006, the 2007 Ten Year SHOPP Plan was presented to the California Transportation Commission. While an investment level of \$2.025 billion per year would reduce the distressed lane miles to ten percent of the system (5,002 lanes miles) by 2017/2018, the plan projects that only \$700 million per year would be available for roadway rehabilitation. At this funding level, rehabilitation needs are projected to increase to 17,700 lane miles by 2017/2018.

Clearly, the pavement management requires sustainable levels of funding commitments and a balanced approach, including a focus on pavement preservation and maintenance, in order to provide consistent benefits. The strategies outlined in the following discussion will enable the Department to prioritize investments to focus on those routes with the highest traffic volume and maintain satisfactory pavements in good condition.

## **Specific Pavement Strategies:**

**Strategy 1:** By 2017/2018, maintain 80 percent of pavement in fair to good condition by focusing investments on improving the condition of pavement rather than other project-related items to the extent possible.

- Reduce rehabilitation needs on highways with the highest average daily vehicle miles traveled (Class 1 highways - Interstate, Goods Movement, Truck and Strategic Highway Network) from 24 percent (6,400 lane miles) to 12 percent (3,242 lane miles) of the inventory by 2017/2018.
- Maintain rehabilitation needs on Class 2 highways (remainder of National Highway System and Interregional Road System) at 28 percent (4,066 lane miles) of the inventory.
- Focus pavement maintenance dollars on Class 3 highways (non-designated and low volume roads) to maintain 68 percent of the Class 3 highways in fair to good condition.
- Aggressively repair unforeseen pavement damage due to weather or abrupt failure.

**Strategy 2:** Balance investment between highly distressed pavement and more cost effective preventive treatments.

**Strategy 3:** Increase rehabilitation design life to 20 or more years.

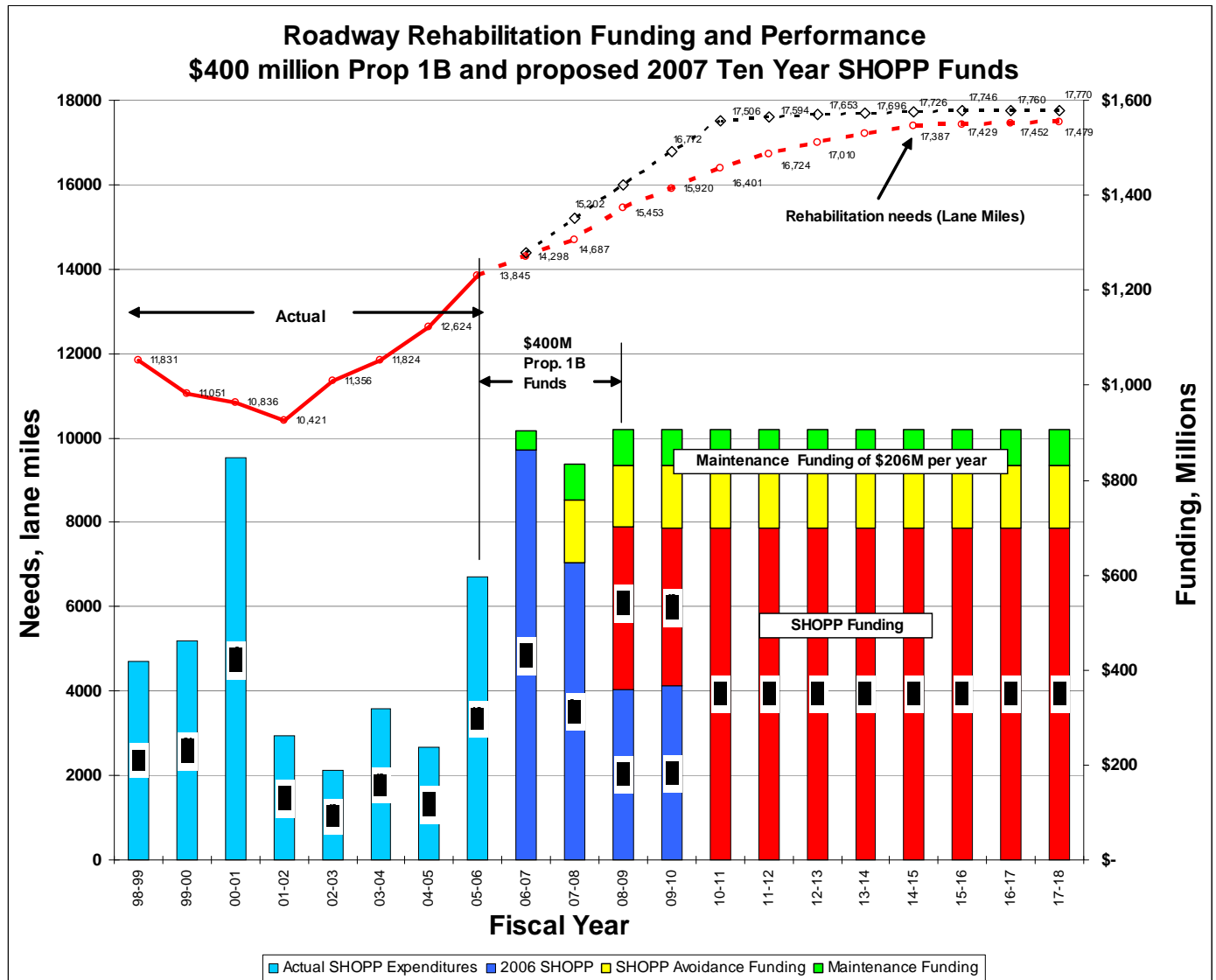
**Strategy 4:** Reevaluate currently programmed projects in the last two years of the 2006 SHOPP to ensure compliance with the strategies and re-scope if necessary.

**Strategy 5:** Conduct life cycle cost analysis on all pavement projects to ensure the most effective project is constructed at the lowest long term cost.

**Strategy 6:** Appoint a State Pavement Program Manager who will be accountable for implementing and reporting on the performance of the Pavement Asset Management Strategies.

**Strategy 7:** Explore opportunities to use GARVEE bonds to accelerate the delivery of major pavement rehabilitation projects if the use of GARVEEs for this purpose would not adversely impact the revenue stream needed to support the ongoing SHOPP program mandates.

## Projected Benefit of \$400 million Proposition 1B (Prop 1B) funding on Rehabilitation Needs:



- Actual funding and performance 1998/1999 to 2005/2006.
- Effects of \$400 million Prop 1B funding in 2006/2007 and 2007/2008 fiscal year will cause a slight reduction in the increase of rehabilitation needs as shown on the chart above.
- Rehabilitation needs will continue to increase to approximately 34 percent of the system with the \$700 million planned in the draft 2007 Ten Year SHOPP Plan and \$206 million in the major maintenance plan.

**Recommend realistic pavement goals:**

- Option #1- Funding level of \$1.1 billion per year is needed to maintain pavement at current conditions.
- Option #2 - Funding of \$1.45 billion per year is needed to reduce rehabilitation needs to 20 percent of the system.
- Option #3 - Funding of \$2.025 billion per year is needed to reduce rehabilitation needs to 10 percent of the system.

The Department recommends Option #2 as a more realistic pavement goal for the Ten Year SHOPP Plan. The Department recommends that the Department, Commission and other stakeholders identify maintenance and rehabilitation needs and explore opportunities to provide a sustainable revenue stream to address these needs